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## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Anchorage Fish and Wildlife Field Office  
605 West 4<sup>th</sup> Avenue, Room G-61  
Anchorage, Alaska 99501-2249



IN REPLY REFER TO:

**JUL 13 2011**

AFWFO

Colonel Reinhard Koenig  
Regulatory Division  
CEPOA-RD  
Post Office Box 6898  
JBER, Alaska 99506-0898

Re: POA-2007-1586, Knik Arm

Dear Colonel Koenig:

The U.S. Fish and Wildlife Service (Service) has reviewed the referenced May 12, 2011, Public Notice for the construction of the new rail line between Port MacKenzie and Interior Alaska. The Alaska Railroad Corporation (ARRC) is seeking a Department of the Army permit to construct a new 32-mile rail line between Port Mackenzie and the existing ARRC main line at a point just south of Houston, Alaska. A 1,000-ft by 10,000-ft terminal reserve is being constructed in connection with this project. The applicant's stated purpose is to provide rail service to Port MacKenzie and connect the Port with the existing ARRC main line, providing Port customers with an alternative means of transportation between Port MacKenzie and Interior Alaska.

The following comments and recommendations are submitted in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended: 16 U.S.C. 661 et seq.) and the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq. as amended). These comments are also for use in determination of 404(b)(1) guidelines compliance (40 CFR 230), and in the public interest review (33 CFR 320.4) relating to protection of fish and wildlife resources.

The Service supports the applicant's decision to provide bridges rather than culverts for most stream crossings. We do, however, have concerns with other aspects of the proposed project that were not made clear during the scoping process. These include: excessive widths of the proposed fill footprint and clearing limits, questionable ranking and evaluation of wetlands, unclear or incomplete quantification of temporary and indirect impacts for compensatory mitigation purposes, and lack of supporting details (e.g., embankment heights, justification for placements and dimensions of wetland culverts).

Our concerns and recommendations regarding the significant impacts to fish and wildlife resources with construction of a 32-mile footprint through a large, substantially intact area of undisturbed habitat are detailed in the Enclosure to this letter. In brief we recommend that Department of the Army permit not be issued until the following conditions are met:

1. Reduce the typical width of the embankment top to 20 feet.
2. Provide additional information to support the embankment description as "low-profile (as possible)."
3. Size bridge spans and culverts to allow for full functioning of riparian and floodplain processes.
4. Provide quantitative information on temporary and indirect impacts.
5. Reduce temporary impacts, particularly in the cases of temporary access road placement and material.
6. Revise the compensatory mitigation plan to reflect the high-functioning nature (including wildlife habitat) of most of the wetland acreage to be lost, and to address impacts to wildlife, temporary fills, and indirect impacts.
7. The permit requires that an eagle nest survey be conducted and nests reported to the Service, prior to start of construction.
8. The permit stipulates that removal or grubbing of vegetation shall not occur during the local breeding season of May 1 through July 15.

Thank you for the opportunity to provide comments on this important project. We look forward to participating in continued discussions and efforts to provide for a Port MacKenzie rail line that meets the applicant's needs while adequately avoiding, minimizing, and compensating for unavoidable impacts to important fish and wildlife resources and their habitats, including wetlands. If you have any questions regarding our recommendations, please contact project biologist Maureen de Zeeuw at (907) 271-2777, or by email at [maureen\\_dezeeuw@fws.gov](mailto:maureen_dezeeuw@fws.gov)

Sincerely,



Ann G. Rappoport  
Field Supervisor

Enclosure

cc: Applicant (Brian Lindamood)  
EPA (Matthew La Croix)  
NMFS (Doug Limpinsel)  
Surface Transportation Board (Victoria Rutson)  
DNR (Melinda Smodey)  
ADFG Habitat (Maria Shepherd and Michael Bethe)  
Matanuska-Susitna Borough

**Project Design (Relevant Details)****Route Description**

Numerous route alternatives and combinations of segment alternatives were assessed in the Final Environmental Impact Statement (FEIS, March 25, 2011). The final proposed alignment as it appears in the Public Notice includes segments, "Mac Central" and "Mac Central/Connector 3," that were not included in the FEIS or otherwise previously reviewed. It is therefore difficult to make complete comparisons among resources and impacts of all segments, and so we note that our comments are based on an assumption that these new segments are some general "average" of other segments in the vicinity (e.g., Mac East, Mac East Variant, Mac West, etc.).

**Embankment Width and Height**

The typical cross-section for the rail line has a 40-foot wide surface on the embankment, with 2:1 side slopes. Forty feet appears to be at least twice the embankment width of typical existing Alaska Railroad rail lines. In earlier scoping discussions (e.g., October 31, 2008, interagency meeting), the applicant tentatively proposed a 40-foot width to accommodate a second track, or, variously, an access road for purpose of aiding construction and maintenance. Neither a second track nor a permanent access road is addressed in the Public Notice materials, and we understood that these potential needs had been dropped from consideration. Furthermore, as noted in the May 10, 2010, Environmental Protection Agency comments on the DEIS, "other sections of rail line throughout the state do not require such a road, and...maintenance can be performed from the rail line itself via hi-rail equipment (such as in the Chugach National Forest)."

Regarding embankment height, it is described as "low profile," but it is unclear what that term means in terms of typical height or relative to the surrounding topography. Plans do show that due to topography, the height of the embankment will vary, with some fills exceeding 20 feet in height above wetland surface or 30 feet in depth in the case of some of the stream crossing structures. The proposed maximum heights or depths of fill are not given, nor are the lengths of stretches of varying (or typical) heights with regard to different surrounding vegetation types. Given this lack of detail, it is difficult to make certain important assessments, such as whether fill footprints have been minimized or what the level of habitat fragmentation with regard to, in particular, territorial landbirds may be (see below).

**Clearing Width**

The proposed route typically has 100 feet of right-of-way (ROW) at each side of the proposed track centerline (for a total of 200 feet of ROW). For an unspecified distance, the proposed ROW will be wider where fill slopes or excavation cut slopes extend beyond 200 feet due to topography. It appears from the Summary of Project Design and Construction that the applicant intends to clear vegetation for the entire width of the ROW along the 32-mile project length, although no explanation is given for this clearing. Grubbing is anticipated only within the embankment footprint.

**Fish and Wildlife Resources**

The project site is a 32-mile undulating corridor across primarily undeveloped mixed wetland and upland habitat and roughly 6 miles of the Point MacKenzie Agriculture Project (active farmland and fallow shrub/forest upland habitat). Eight fish-bearing stream crossings are included in the project plans, including seven anadromous crossings (the Little Susitna River, three of its unnamed tributaries, outlets to Diamond and Muleshoe Lakes, and a tributary to Little Horseshoe Lake). Anadromous fishery resources may not be fully documented but include, at minimum, coho salmon.

The wetland footprint, totaling about 102 acres as mapped by the applicant, is primarily a mosaic of palustrine broadleaf and needleleaf scrub-shrub wetland types and needleleaf forested wetland types. As noted in the FEIS, these wetlands are primarily high-functioning:

- “Wetlands in the study area are very highly functional because they are predominantly intact, undisturbed systems.” (page 4.5-5)
- “Forested wetlands....one of the predominant wetland types within the study area....function to increase nutrient export, modify stream flow, and contribute to the diversity and abundance of wetland fauna. Needleleaf forested wetland communities also have high functional capacities for improving water quality.” (p. 4.5-2)
- “Scrub/shrub wetlands also dominate the study area and ....like forested wetlands...increase nutrient export and modify stream flow. Scrub/shrub wetland communities also have high functional capacities for improving water quality and contributing to the abundance and diversity of wetland fauna because of the abundance of browse and nesting habitat. Seasonally flooded broadleaf scrub/shrub communities adjacent to streams have a high functional capacity for contributing to the food chain by exporting nutrients downstream.” (p. 4.5-3)
- Specifically for the project routes that approximate the final route chosen (see above):
  - “The Mac East-Connector 3-Houston-Houston South Alternative, along with [another alternative] would affect the largest proportion of wetlands with high functionality for groundwater discharge (89 percent) across all alternatives. This alternative also would affect wetlands that are high functioning for export of detritus, wildlife habitat, modification of water quality, stream flow moderation, storm water and flood water storage, and vegetation diversity.” (p. 4.5-24)
  - “The Mac East Variant-Connector 3 Variant-Houston-Houston South Alternative would affect wetlands that are high functioning for export of detritus, groundwater discharge, wildlife habitat, modification of water quality, stream flow moderation, storm water and flood water storage, and vegetation diversity.” (p. 4.5-26)

These large, undeveloped wetland areas, and the mostly undeveloped (i.e., except for farmland) upland-wetland habitat mosaic in the project area provide habitat for a variety of native wildlife. Besides moose, bear, and other large and small mammals, over 40 species of migratory birds (protected by the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703) have been documented in the project area (FEIS p. 5.3-5). Most migratory birds including waterbirds, raptors, and landbirds, likely breed within the project site or vicinity. At least five species on the Service’s Birds of Conservation Concern (2008) list likely breed in the project vicinity, including horned grebe, solitary sandpiper, lesser yellowlegs, olive-sided flycatcher, and rusty blackbird. Bald

eagles, which have additional protections along with their nests under the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668c), also breed in the project area.

### **Direct Impacts**

The proposed railroad extension would have significant impacts to fish and wildlife and their habitats as documented in the applicant's plans. These include a permanent loss of 101.9<sup>1</sup> acres of wetland habitat and 679.8 acres of upland habitat and farmland (Public Notice Attachment 2: Impacts to Wetlands and Waterbodies). According to the FEIS<sup>2</sup>, almost 900 individual nesting birds<sup>3</sup> would lose their breeding territories. Direct mortality of the eggs and chicks of nesting birds could also occur if clearing activities were conducted during the local bird nesting season.

Direct loss of fish habitat would include some permanent open water habitat, and for some fish, particularly juvenile coho salmon, would also include an unknown number of acres of seasonally flooded wetlands used for foraging and rearing. Loss of open water and wetland acreage would also result in habitat loss for an unknown number of wood frogs.

For mammals, the FEIS describes a partial loss of habitat for one brown bear and one black bear, and reduced habitat for 5 to 7 moose (p.5.3-9). Moose mortality from train collisions on the new line is anticipated to average 3-4 per year, primarily from November to February. Increased train traffic on the existing main line from this project is expected to result in an average combined direct and indirect mortality of 6 to 7 moose per year. Also, "(b)rush cutting for vegetation maintenance could concentrate highly palatable forage for moose along the rail line, which could increase....the probability that an animal would cross the rail line and be hit by a train."

Direct impacts to furbearers and other mammals are described as follows (p.5.3-11)<sup>4</sup>:

- Habitat loss affecting as many as 5-10 beavers, 14-28 ermine, 11-40 least weasels, 4-10 female mink, 19-37 muskrats, 317-634 red squirrels, 18-98 snowshoe hare, 513 northern bog lemmings, 4-46 northern flying squirrels, 2-30 porcupine, 686-2287 shrews, and 686-2,744 voles.
- "Habitat loss in riparian areas would be of disproportionate consequence to river otters, muskrats, or beavers if burrows and den sites were destroyed and suitable substrates and materials for den construction were rare."
- Direct mortality could result for "a few" furbearers and other mammals hit and killed by construction vehicles, and "several train-animal collision mortalities" could be expected each year, with porcupines "especially vulnerable."

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<sup>1</sup> Incorrectly calculated as 101.8 in the Public Notice

<sup>2</sup> Calculations here are for the Houston-Houston South (p.5.3-20) and an average of the Mac East Variants (approximating the Mac Central final alignment alternative, p. 5.3-16) segments.

<sup>3</sup> It is unclear if the figures presented in the FEIS are for individual birds or for territories, which would double the number of individual birds displaced to almost 1,800.

<sup>4</sup> Numbers vary among the different alternative alignments, with the preferred alignment likely being somewhere towards the middle of the range.

**Indirect Impacts****Stream Crossing Structures**

Eight fish-bearing stream crossings will be constructed or re-constructed for the new rail line. The applicant indicates that sampling assured that no other waterbody crossings planned for the project involve fish-bearing waters. Five bridges, one culvert, and one culvert extension are planned for the seven anadromous crossings, and a bridge for the resident-fish-only stream crossing.

In general, aquatic and riparian habitats are established and maintained by riparian and floodplain processes such as the transport of sediment and bed material, the conveyance of debris and flood flows, and the assimilation of nutrient inputs from the watershed. Nutrient inputs include marine-derived nutrients from anadromous fish such as salmon and lamprey species. Full functioning of these riparian and floodplain processes requires connectivity from a stream's headwaters to its mouth.

Indirect impacts to fish that may occur as a result of this project include obstruction of adult fish passage, juvenile fish passage, or both. Blockage or partial blockage of fish passage can occur when crossing structures are not constructed appropriately. Examples include culverts or bridges that are too narrow and create velocity barriers to fish, or improperly placed culverts that become perched and introduce a break in vertical connectivity that fish must jump to navigate.

The proposed Port MacKenzie rail line project crossings are inadequate to allow for full functioning of riparian and floodplain processes. While bridges are preferred to culverts, all five proposed project bridges will constrict and control flows and will displace valuable riparian habitat with riprap. Our previous comments (May 13, 2010) on the Draft EIS on the subject of bridges and culverts remain pertinent.

Attachment 1: Project Description also states that 38 other "upland" culverts are planned (p. 7 of 11), but locations and purposes are unclear. It is possible that if adequate sampling for presence of fish has not been done in these smaller drainages, other fish resources could be negatively impacted during and/or after construction.

**Wetland Drainage Structures**

In addition to loss due to placement of fill, wetlands can be indirectly impacted by construction in numerous ways. For example, ponding and/or drying can result if surface drainage is not adequately understood and cross-drainage structures are not appropriately designed. As noted in the FEIS (p. 4.5-7):

Changing the hydrologic regime of wetlands by fragmenting the connection between larger wetland areas ...could result in impacts to the ability of adjacent wetlands to support a high diversity of wetland fauna. For example, culverts could drain permanently flooded areas that provide valuable habitat for waterfowl. When floods or other high-water events occur, culverts could sink into the underlying peat, or rise up and become perched and, over time, could prevent the movement of water from one side of the rail bed to the other. In this way, wetlands on one side of the rail bed might be drained,

changing the hydrology of the wetland system. A change in the hydrology...could result in impacts to wetlands adjacent to the rail bed, and could reach outside the extent of the rail line footprint.

A total of 57 wetland drainage culverts are planned (Attachment 1: Project Description p. 7 of 11). The project description also says "additional culverts may be added during construction." No maps of any of these original or potential additional culvert locations or information on what assessments were done to determine appropriate culvert locations, sizes, and design have been provided. Without this information, it is impossible to determine the possible impacts or extent of impacts that may result from the wetland drainage culvert plan.

### **Habitat Fragmentation**

Habitat fragmentation is also expected to affect many species of wildlife. The Public Notice materials are not clear as to height of rail line embankment, but a miles-long, unbroken (or broken only occasionally by bridges or culverts), unvegetated embankment that significantly rises above the surrounding, vegetated, relatively flat habitat will present a difficult or insurmountable barrier to many small animals.

As noted in the FEIS (p. 5.3-7 to 5.3-18), "issues relevant to wildlife related to habitat fragmentation include barriers to movement, creation of edge effects, reductions in core habitat size, facilitation of predator feeding, (and) intrusion of invasive species..." In particular:

- Small animals (e.g., lemmings, shrews, voles, amphibians) will likely be unable to cross the rail line.
- Brood-rearing waterfowl and waterbirds will likely be unable to cross the tracks and may avoid crossing through small-diameter culverts.
- Fragmentation of late-succession forest habitats will likely impact forest-nesting landbirds and old-growth dependent mammals, such as the marten, by fragmenting large patches of forest and creating edge habitat. This could lead to a reduction in core habitat size and ultimately decreased reproductive potential.

While the barrier and habitat-loss impacts of habitat fragmentation to most small wildlife species will likely only affect those in the direct vicinity of the rail line, these cumulative impacts are expected to be significant over the 32-mile length of the project.

### **Water Quality**

Water quality could be affected in several ways by this project. For example, changes in drainage patterns, such as those caused by inappropriately placed or designed wetland-crossing culverts or bridges, can result in the creation of surface impoundments that would decrease water circulation and lead to water stagnation....increased water temperature, lower dissolved oxygen levels, changes in salinity and pH, the prevention of nutrient outflow, and increased sedimentation. (FEIS p. 4.5-9).

### **Temporary Impacts**

Temporary impacts that may result from a project of this type are numerous and varied. They include, but are not limited to, disruption of fish and wildlife passage and breeding, degradation of water quality, and short and long-term degradation of other wetland functions and values via damage or compression to wetland vegetation. The Public Notice states that there will be

38.9 acres of temporary impact, but no information (e.g., maps, locations, types) is given. Therefore neither the extent of temporary impacts nor the adequacy of any mitigation for them can be adequately assessed.

We do note that it appears that, at least in some cases, wetlands not included in the fill footprint will only be protected from the operation of heavy equipment and stockpiles of material by the placement of geotextile fabric. Geotextile fabric will not adequately protect fragile wetland plants from the operation and weights of trucks and fill, and long-term or permanent degradation may result.

### **Mitigation**

#### **Avoidance and Minimization Measures**

The applicant references a number of avoidance and minimization measures to help mitigate impacts to wetlands and fish and wildlife resources. These measures appear in Attachment 1: Project Description and Attachment 3: Mitigation Statement of the Public Notice materials, and in Chapter 9: Noise and Vibration of the FEIS. The avoidance and minimization measures, in general, range from siting measures (e.g., selection of a new “Mac Central and Mac Central/Connector 3”) alignment in the southern section to reduce wetland impacts, relocation of the terminal reserve to uplands, etc.) to best management practices such as stabilizing embankments in a timely manner and having spill response material on hand. Construction of water crossings will occur according to the timing stipulations and other requirements of the Alaska Department of Fish and Game (ADF&G) Title 16 fish habitat permits.

We are concerned that some important “avoidance and minimization” measures are unclear, unsubstantiated, or absent. These need to be addressed as follows:

- The applicant states that the “rail line uses the minimum width fill footprint necessary to provide a stable rail base” (Attachment 3: Mitigation Statement). The reason for a 40-foot wide embankment top is not explained and appears to be at least twice the width of typical ARRC rail embankment tops elsewhere in the state. Therefore, it is not a “minimization” measure, but a substantial and seemingly unnecessary increase in impacts to wetlands. In earlier scoping activities the Service and other resource agencies expressed concern about excessive fill footprint widths to accommodate an unnecessary access road, and were informed by the applicant that the access road would be removed from the project plans. Please clarify the justification for the 40-foot wide embankment top and whether the access road has been removed from project plans.
- An overly-high profile not only results in excessive wetland fill at the base for stabilization purposes, but can also contribute to habitat fragmentation. While the applicant states that the “rail line has a low-profile embankment to limit the fill footprint,” “low-profile” is not defined but should be.
- Bridges and culverts should be wider so as not to constrict flows.
- Clearing or other ground-preparation activities that are conducted during spring and summer nesting can destroy active bird nests, eggs, and nestlings in violation of the MBTA. They should be scheduled outside the nesting window.



- Bald eagle nests have additional protections under BGEPA and nest surveys are necessary prior to construction in order to avoid unpermitted nest destruction or disturbance to nesting eagles.

### **Compensatory Mitigation**

Compensation for unavoidable impacts to wetlands has been suggested by the applicant at the following ratios and functional assessments:

- 1.5 to 1 ratio for preservation or 1 to 1 ratio for restoration/enhancement for 77.6 acres of “low” functioning wetlands;
- 2 to 1 (preservation) or 1 to 1 (restoration/enhancement) for 23.6 acres of “moderately” functioning wetlands; and
- 3 to 1 (preservation) or 2 to 1 (restoration/enhancement) for 0.7 acre of “high” functioning wetlands.

The compensatory mitigation plan is inadequate for the following reasons:

- Of the 101.9 acres of wetland to be directly impacted, the finding that only 0.7 acre is “high” functioning and 77.6 acres are “low” functioning does not appear “to pass the red-face test.” Not only is the project site located on a very large, almost continuously (except for the farmland portion and scattered small roads) undeveloped mosaic of wetlands and uplands functioning in its natural state and with a value enhanced by its large size, but the applicant’s own FEIS describes most of the wetlands as “high-functioning” (see paragraph 2 under our section, “Fish and Wildlife Resources,” above).
- The functional assessment used to determine these new “moderate” and “low” characterizations (Attachment G of March 2011, permit application packet) is non-standard, muddled, and incompletely described. Apparently, three different functional methodologies were used and somehow combined to result in these new characterizations. More details and discussion of the overall methodology and calculations are needed before we could potentially concur with such an unexpected finding.
- While the applicant cites the 2009 Alaska District Regulatory Guidance Letter (RGL ID No. 09-01) to explain the wetland rankings, we point out the following:
  - The rankings cited by the applicant are specifically described in the RGL as only an example (Appendix A).
  - The Appendix A rankings cited are not “high,” “moderate,” and “low,” but are “high,” “high to moderate,” and “moderate to low.”
  - Appendix A states that “moderate to low” functioning wetlands “usually have experienced some form of degradation,” which all or most of the 77.6 acres ranked as “low” by the applicant have not.
  - Appendix A states that “high to moderate” functioning wetlands “provide habitat for very sensitive or important wildlife or plants,” which is true of many of the project-area migratory bird species that do not occur in more disturbed areas or smaller patches ....; or “provide very high functions, particularly for wildlife habitat,” which is also true of the more than 23.6 wetland acres awarded this ranking by the applicant.
  - Appendix A states that “high” functioning wetlands may include those that “are undisturbed and contain ecological attributes that are impossible or difficult to

replace within a human lifetime.” This may be true for many of the acres of peatlands and other wetlands in the project area.

- The compensatory mitigation plan specifically does not include any compensatory mitigation for temporary wetland impacts, stating that “no long-term affect (sic) is expected.” This is inadequate because:
  - Almost no information is given to explain the proposed temporary impacts. The applicant should provide, at minimum, maps and location descriptions of areas of proposed temporary impacts, and quantitative descriptions of the types of temporary impacts that may occur.
  - It appears that temporary fills may be created to accommodate temporary access roads and/or staging and stockpiling areas, and that these fills will be placed upon geotextile fabric only. Matting of this type is likely not sufficient to protect sensitive wetlands from heavy equipment and stockpiles.
- The direct, permanent impacts to wildlife, including habitat and territory losses and direct mortality, will likely be substantial and have not been addressed.

### **Recommendations**

This project, with a 32-mile footprint through a very large, substantially intact area of undisturbed habitat, will have significant impacts to fish and wildlife resources. Important information justifying details of project scope and design have not been made available, and the mitigation plan, especially with regard to wetland evaluation and actual scope of “temporary” and “indirect” impacts, is inadequate. Without attention to these details and plans, we cannot be assured that the impacts to fish and wildlife resources, or to waters of the U.S. will be appropriately avoided, minimized or compensated. We therefore recommend that the Department of the Army permit not be issued for the proposed project until the following conditions are met:

1. To minimize impacts to the aquatic environment while still meeting the applicant’s stated purpose and need, the typical width of the embankment top shall be reduced to 20 feet.
2. To help assure that habitat fragmentation is minimized, additional information (including average and maximum embankment heights, approximate lengths of rail line of the various embankment height categories, and locations of “high-profile” embankment segments – i.e., exceeding 4 feet – with respect to habitat types) shall be provided which satisfactorily supports the description of the embankment as “low-profile (as possible).”
3. Bridge spans and culverts shall be properly sized to allow for full functioning of riparian and floodplain processes. In the case of bridges, replacement of riparian habitat with riprap will therefore be unnecessary and avoided.
4. Quantitative information shall be provided regarding temporary and indirect impacts. This will include, but not be limited to, maps and location descriptions of areas of proposed temporary impacts, and quantitative descriptions of the types of temporary impacts (e.g., temporary fills to accommodate access roads and/or staging and stockpiling areas) that may occur.
5. A more detailed plan for construction access and heavy equipment operation with pre-delineated impact limits is needed to ensure that temporary impacts are minimized. Additionally, use of geogrid or other more protective material is more appropriate during construction than geotextile fabric.

6. The compensatory mitigation plan shall be revised to reflect the high-functioning nature (including wildlife habitat) of most of the wetland acreage to be lost. The compensatory mitigation plan shall also be revised to address direct, permanent impacts to wildlife, including habitat and territory losses and direct mortality. The plan shall also be revised to mitigate for "temporary" fills that are actually likely to have long-term impacts (such as where wetlands are damaged by heavy equipment or stockpiling). Finally, the plan shall be revised to address indirect impacts, such as any unavoidable constriction of stream flows, wetland ponding, etc.
7. Prior to construction, an eagle nest survey shall be conducted. Any bald eagle nests within the project area shall be reported to the U.S. Fish and Wildlife Service.
8. In order to comply with the Migratory Bird Treaty Act, site preparation activities that involve removal or grubbing of vegetation are to be confined to the time period outside the local breeding season, i.e., May 1 through July 15.